

# S-TIH18

Code(d) **72292**

Code(e) **72790**

Refractive Index $n_d$	<b>1.72151</b> 1.721507	Abbe Number $v_d$	<b>29.2</b> 29.23	Dispersion $n_F-n_C$	<b>0.02468</b> 0.024683
Refractive Index $n_e$	1.727331	Abbe Number $v_e$	29.00	Dispersion $n_F-n_C$	0.025081

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.67384
$n_{1970}$	1.97009	1.68002
$n_{1530}$	1.52958	1.68715
$n_{1129}$	1.12864	1.69453
$n_t$	1.01398	1.69734
$n_s$	0.85211	1.70272
$n_{A'}$	0.76819	1.70668
$n_r$	0.70652	1.71047
$n_C$	0.65627	1.71437
$n_{C'}$	0.64385	1.71548
$n_{\text{He-Ne}}$	0.6328	1.71653
$n_D$	0.58929	1.72129
$n_d$	0.58756	1.72151
$n_e$	0.54607	1.72733
$n_F$	0.48613	1.73905
$n_{F'}$	0.47999	1.74057
$n_{\text{He-Cd}}$	0.44157	1.75195
$n_g$	0.435835	1.75399
$n_h$	0.404656	1.76735
$n_i$	0.365015	

Partial Dispersions	
$n_C-n_t$	0.017028
$n_C-n_{A'}$	0.007687
$n_d-n_C$	0.007136
$n_e-n_C$	0.012960
$n_g-n_d$	0.032488
$n_g-n_F$	0.014941
$n_h-n_g$	0.013358
$n_i-n_g$	
$n_C-n_t$	0.018141
$n_e-n_{C'}$	0.011847
$n_{F'-n_e}$	0.013234
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6899
$\theta_{C,A'}$	0.3114
$\theta_{d,C}$	0.2891
$\theta_{e,C}$	0.5251
$\theta_{g,d}$	1.3162
$\theta_{g,F}$	0.6053
$\theta_{h,g}$	0.5412
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7233
$\theta'_{e,C'}$	0.4723
$\theta'_{F',e}$	0.5277
$\theta'_{i,F}$	

Thermal Properties	
Strain Point StP (°C)	570
Annealing Point AP (°C)	596
Transformation Temperature Tg (°C)	616
Yield Point At (°C)	644
Softening Point SP (°C)	703
Expansion Coefficients (-30~+70°C)	83
$\alpha$ (10 <sup>-7</sup> /°C) (+100~+300°C)	98
Thermal Conductivity k (W/m·K)	1.029

Coloring			
$\lambda_{80}$	41	$\lambda_5$	36
$\lambda_{70}$			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.18
380	0.54
390	0.77
400	0.87
420	0.951
440	0.971
460	0.979
480	0.984
500	0.988
550	0.995
600	0.995
650	0.993
700	0.995
800	0.998
900	0.999
1000	0.999
1200	0.999
1400	0.996
1600	0.995
1800	0.986
2000	0.978
2200	0.948
2400	0.928

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0061
$\Delta\theta_{C,A'}$	0.0001
$\Delta\theta_{g,d}$	0.0122
$\Delta\theta_{g,F}$	0.0111
$\Delta\theta_{i,g}$	

Mechanical Properties	
Young's Modulus E (10 <sup>8</sup> N/m <sup>2</sup> )	891
Rigidity Modulus G (10 <sup>8</sup> N/m <sup>2</sup> )	357
Poisson's Ratio $\sigma$	0.248
Knoop Hardness Hk[Class]	560   6
Abrasion Aa	154
Photoelastic Constant $\beta$ (nm/cm/10 <sup>5</sup> Pa)	2.87

Constants of Dispersion Formula	
A <sub>1</sub>	1.59921608E+00
A <sub>2</sub>	2.59532164E-01
A <sub>3</sub>	2.12454543E+00
B <sub>1</sub>	1.16469304E-02
B <sub>2</sub>	5.84824883E-02
B <sub>3</sub>	1.86927779E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1 ~ 2
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	1.0

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.07
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$dn/dt$ relative (10 <sup>-6</sup> /°C)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	1.1	1.8	1.8	2.2	2.5	3.5	4.7
-20~0	1.2	1.9	2.0	2.3	2.7	3.8	5.0
0~20	1.3	2.0	2.2	2.5	2.9	4.0	5.3
20~40	1.4	2.2	2.3	2.7	3.1	4.3	5.7
40~60	1.5	2.3	2.5	2.8	3.3	4.5	6.0
60~80	1.6	2.4	2.6	3.0	3.5	4.8	6.3